★ **THOM·**   T05   93-274719/35   ★ **EP 558307·A2**
Gaming or amusement machine with two display areas · has set of electromechanical reels and set of simulated reels on video screen with corresponding symbols to provide winning combinations (Eng)
    THOMAS LTD ARTHUR EDWARD 92.02.24 92GB-003871
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93.02.24 93EP-301384 R(DE ES GB NL)
The machine has a first display area (11) for displaying, in variable combinations, symbols from predetermined sequences (4, 6, 8). A second display area (20) similarly displays symbols (22, 24, 26). A prize is awarded if a displayed symbol combination is deemed to be a winning combination.

Symbols in the second display area can be altered in a sequence, depending upon the symbols in the first display area. The sequences of symbols are formed by reels, with at least those on the second display being simulated on a video screen. The exchanging of symbols can be inhibited under user control.

    ADVANTAGE - Provides additional facilities to enhance attractiveness of machine to potential players. (7pp Dwg.No.1/1)
    CT: No-SR.Pub
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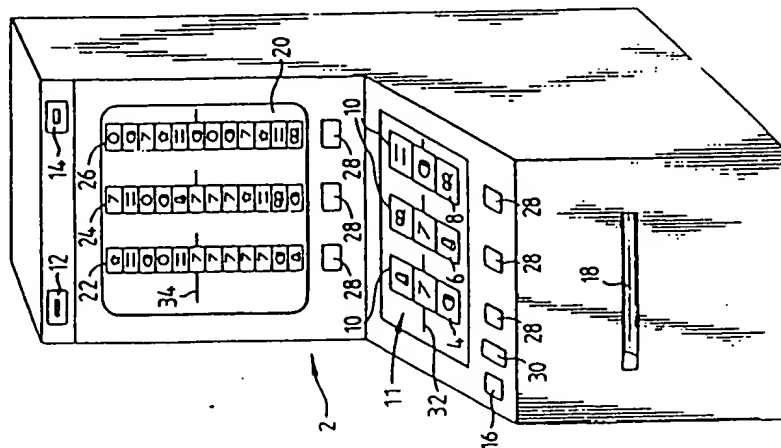
(12) EUROPEAN PATENT APPLICATION

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(54) Gaming or amusement machine.

(57)   A gaming machine has a set of electro-mechanical reels and a set of simulated reels on a video screen. The simulated reels have symbols which correspond to those on the mechanical reels, but non-winning combinations of symbols on the win line associated with the electro-mechanical reels are duplicated on the win line of the simulated reels so that the composition of the symbols on the simulated reels gradually changes. The simulated reels are initialised to correspond to the electro-mechanical reels following a win.

FIG.1
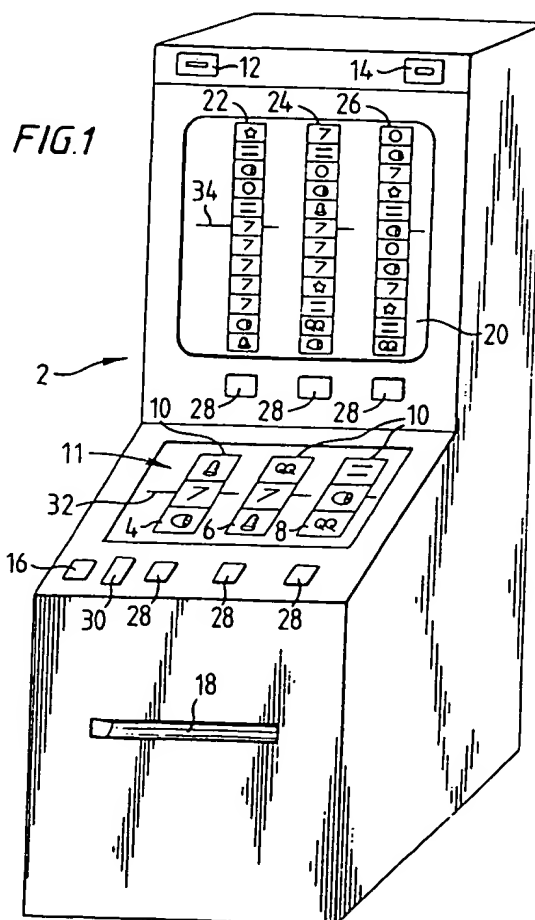
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This invention relates to gaming or amusement machines.

One known form of gaming machine, commonly called a fruit machine, has a mechanism comprising a plurality of reels which carry symbols and which are independently rotatable so as to display the symbols in different combinations. By insertion of a coin, a user can operate the machine to cause the reels to rotate. If, upon stopping of the reels, the display symbols are in a predetermined winning relationship, the machine awards a winning prize, either by paying out coins to a predetermined value or by incrementing a credit count stored in the machine.

Various enhancements to such machines are known, and generally operate to allow a user to change the displayed combination of symbols in order to increase the opportunity of obtaining a prize. One such enhancement is what is known as a "nudge" facility. The user is occasionally given the option of indexing one or more of the stationary reels so as to alter in a stepwise manner the combination of symbols displayed. In other arrangements, using simulated reels displayed on a video screen, the displayed symbols can be rearranged (see, for example, GB-A-2 106 293 and GB-A-2 106 295). It is also known to provide a "hold" facility whereby the user can selectively inhibit the rotation of particular reels so as to increase the likelihood that a particular symbol combination will appear after the remaining reel or reels is/are rotated.

It is also known to combine two reel mechanisms into a single machine. For example, GB-A-2 117 155 shows a machine which incorporates both a set of electro-mechanical reels and a set of simulated reels which appear on a video screen. The arrangement described therein is extremely attractive in that it assists the user to operate the above-mentioned nudge facility, partly because the simulated reels carry the same symbol sequences as the corresponding electro-mechanical reels, but display a greater number of symbols so that the user can more easily perceive what can be achieved by using the nudging facility.

It would be desirable to provide a machine which provides additional facilities which enhances the attractiveness of the machine to potential players.

According to the present invention there is provided a gaming or amusement machine having a first display area for displaying in variable combinations a plurality of symbols each from a respective predetermined sequence of symbols, a second display area for displaying in variable combinations a plurality of symbols each from a respective predetermined sequence of symbols, and means for awarding a winning prize if a displayed symbol combination is a predetermined winning combination, characterised by means for altering a symbol in a sequence associated with the second display area to a different symbol which depends upon what has been displayed in the

first display area, thereby to alter the likelihood that a particular combination will be displayed in the second display area.

Preferably, each of the sequences of symbols associated with the first display area corresponds to a respective one of the sequences of symbols associated with the second display area. Preferably, a symbol in a sequence associated with the second display area can be changed to a different symbol which depends upon (and preferably corresponds to) a symbol of the corresponding sequence which is displayed in the first display area.

It is envisaged that the invention will be embodied in a gaming machine incorporating two sets of reels, at least one of the sets being formed by simulated reels on a video screen. Possibly both sets of reels could be simulated, either on the same video screen or on respective video screens, but it is preferred that the other set of reels be mechanical or electro-mechanical reels. For convenience, the invention will be described below in the context of this preferred arrangement, whereby mechanical or electro-mechanical reels carry on their peripheries the symbol sequences associated with the first display area mentioned above, and simulated reels have the symbol sequences associated with the second display area mentioned above. However, this should not be regarded as limiting. Although the term "reel" will be used extensively, it is to be appreciated that as is well known a reel need not have the conventional drum-like configuration of typical electro-mechanical reels, but may appear physically somewhat different, e.g. as a wheel or other device allowing projection of symbol images on a screen, or as a strip of symbols on a video screen arranged such that the symbols can move progressively along the strip, with the symbol at one end disappearing and then appearing at the opposite end, to simulate reel rotation.

Thus, according to another aspect of the invention, a gaming or amusement machine has two sets of reels, at least one of which has its symbols displayed on a video screen, which symbols can be changed in a manner determined and controlled by the symbols of the other reels.

It will be appreciated that in a gaming machine of the present invention the symbols on the simulated reels can change and thereby alter the likelihood that particular combinations of symbols will be displayed after the simulated reels have spun, so as to provide a game of enhanced interest which is attractive to potential players. As will be seen below, preferred aspects of the invention can result in a game whose characteristics change substantially with time, and in which particular winning combinations become much more easily achievable in a way that is readily perceivable by the player, thus providing a machine which is substantially more attractive than those of the prior art.

In the preferred embodiment, the winning combinations for the mechanical reels are the same as those for the simulated reels. When a symbol on the simulated reels is changed, it is made to correspond to a particular symbol on the corresponding mechanical reel, preferably by making it physically resemble that symbol.

The symbol changing operation may be controlled so that it is available only on random, or psuedo-random occasions. Alternatively, it may be available each time a reel-spinning operation has taken place and no winning combination has resulted. Means may be provided to allow a user manually to enable or inhibit a symbol changing operation.

The machine is preferably operable to reset the symbols on the simulated reels to an initial state. Preferably, this involves bringing the symbols into correspondence with those on the mechanical reels. Alternatively, at least some of the symbols on the simulated reels may become blank symbols, -which cannot contribute to a winning combination, and which are gradually replaced by symbols corresponding to those on the mechanical reels as the symbol changing operations are performed.

Preferably, the machine is provided with a hold facility, and preferably this facility is applicable both to the mechanical and to the simulated reels. When the hold facility is used on a simulated reel, it prevents the spinning of that reel and also prevents the symbol changing operation on that reel. When the hold facility is used on a mechanical reel, it inhibits the spinning of that reel, and also makes it certain or more likely that a symbol on the corresponding simulated reel will be changed to correspond with the "held" mechanical reel symbol. It will be understood that because of the interdependence of the simulated and mechanical reels, the provision such a hold facility produces results which differ from the hold facility used in conventional mechanisms.

The machine is also preferably provided with a nudge facility which can be used on the simulated reels in combination with the symbol changing operation. In this way, it is possible to have a simulated reel nudged and for adjacent symbols of that reel to be successively changed to the same symbol. As a result, the user will perceive that a particular reel has the same symbol in a large number of different positions, so that the chances of gaining a combination involving that symbol are greatly enhanced.

An arrangement embodying the invention will now be described by way of example with reference to the accompanying drawing, Figure 1, which is a perspective view of a gaming machine in accordance with the invention.

The gaming machine 2 has an electro-mechanical reel mechanism comprising reels 4, 6 and 8 which are mounted for rotation about a common, horizontal axis, and which carry symbols spaced around the cir-

cumferences of the reels. There may for example be 12 pairs of symbols on each reel. Portions of the circumferences of the reels can be viewed in a display area 11 through display windows 10. The arrangement may be such that, for example, three symbols on each reel can be seen through the windows 10.

The machine 2 has slots in plates 12 and 14 for receiving coins and tokens, and a start button 16 which can be operated after insertion of a coin or token to initiate spinning of the reels 4, 6 and 8. The machine 2 has a tray 18 to which the machine delivers coins or token if a user wins a game. Provision may be made for payment or prizes to be in other forms than cash or tokens (e.g. credit cards).

The machine 2 also has a video screen 20, which in this case is the screen of a cathode ray tube monitor. Other types of electrically alterable display screens can be used, such as liquid crystal or electro-luminescent matrix displays.

The screen 20 displays three vertical strips, 22, 24 and 26, of symbols, each strip representing the symbols on a respective simulated reel. In an initial state, the displayed symbols on each of the strips 22, 24 and 26 correspond to the symbols on, respectively, the reels 4, 6 and 8. The simulated reels 22, 24 and 26 are in the same relative positions as the electro-mechanical reels 4, 6 and 8. Preferably each simulated reel is aligned with its corresponding electro-mechanical reel. The displayed symbols on the simulated reels are physically similar in appearance, and are disposed at relative positions corresponding to the symbols on the mechanical reels. Thus, the central symbol on a reel 4 as seen through a window 10 may be positioned at the centre of the corresponding strip 22 of symbols on the screen 20.

The machine is also provided with individual reel selection buttons 28, and a cancel button 30, for purposes to be described later.

The circuitry of the machine and the basic mode of operation may correspond to that of the machine described in GB-A-2 117 155, the contents of which are incorporated herein by reference, and attention is directed in particular to Figure 2 of that patent specification and the associated description. However, many other ways of operating the machine will be well known to those skilled in the art. The following description therefore will be directed primarily to the way in which the machine of the present invention differs from the operation of the machine described in GB-A-2 117 155.

Assuming that the simulated reels 22, 24 and 26 are in the initial state mentioned above, and that coins or tokens of sufficient value have been inserted into the machine, a user may then press the start button 16 to initiate spinning of all the reels 4, 6, 8, 22, 24 and 26. Each simulated reel may spin in synchronism and by the same amount as its associated electro-mechanical reel, but preferably they spin independently so

that they may rotate by different amounts. After the reels have finished spinning, the machine will determine whether either the electromechanical reels 4, 6 and 8 or the simulated reels 22, 24 and 26 are so positioned that either the symbols aligned with a win line 32 for the mechanical reels, or the symbols aligned with a win line 34 for the simulated reels, form a predetermined winning combination. As is per se known in the art, there may be a static display of all possible winning combinations, together with the prizes associated therewith; there may be more than one win line; the number of win lines may be variable; and the position of the win line(s) may also be variable. Any variations may be controlled automatically or by the user.

Assuming that no winning combination is aligned with either of the win lines, the symbols aligned with the win line 34 are then changed so that the symbol on the strip 22 is made to correspond with the symbol on the reel 4 which is aligned with the win line 32, the symbol on the strip 24 is changed so that it corresponds to the symbol on the reel 6 which is aligned with the win line 32, and the symbol on the reel 26 is changed so that it resembles the symbol on the reel 8 aligned with the win line 32. As a result of this, each of the strips 22, 24 and 26 now comprises a sequence of symbols which is slightly different from the sequence of symbols on the corresponding one of the reels 4, 6 and 8. When the next game is played, therefore, and the simulated reels are spun, the likelihood of particular combinations of symbols appearing on the win line 34 after the reels have halted will be different. As more games are played, the symbols on the simulated reels 22, 24 and 26 are progressively changed to correspond to those which appear on the win line 32 for the mechanical reels 4, 6 and 8, so that eventually the sequences of symbols on the simulated reels may be very different from the sequences on the mechanical reels. The user is therefore aware that he is effectively playing two games simultaneously, and that one of these games is changing in a progressive manner. It will be understood that this greatly enhances the attraction of the machine.

Certain symbols may be associated with particularly high-value win prizes, and therefore the user may be encouraged to play by the presence of an unusually large number of those symbols on the strips 22, 24 and 26.

Following the spinning of the reels, if the combination of symbols on the win line 34 or the combination of symbols on the win line 32 corresponds to a winning combination, the user is awarded a prize (which in the preferred embodiment may be either collected or gambled at the choice of the user, as is known per se in conventional machines). Then, the simulated reels 22, 24 and 26 are reset to an initial state, preferably such that the symbols on each simulated reel correspond in form and position to the symbols on the

corresponding mechanical reels 4, 6 and 8.

On random or psuedo-random occasions, the user is provided with a hold facility, which is indicated to the user by a display (not shown). The user is then able to press any one of the buttons 28, as a result of which the associated one of the mechanical or simulated reels will not spin during the current game when the start button 16 is pressed. The cancel button 30 can be operated at any time prior to pressing the start button 16 to cancel the current selection made using the buttons 28. If a simulated reel is held, then the symbol changing operation for that reel is inhibited.

By way of example, the symbols associated with the win line 34 may represent, in sequence, a cherry, an orange and an orange, and the symbols aligned with the win line 32 may represent an orange, a melon and a melon. It is assumed that all the reels (24, 26, 4) with an orange symbol on a win line are held by operation of the respective buttons 28. The start button 16 is pressed and then the remaining reels spin and stop. The symbol of the first of the simulated reels, 22, which is on the win line is then changed to correspond to the symbol of the reel 4 on the win line 32, which represents an orange because that reel 4 has been held. Accordingly, the symbols aligned with the win line 34 are now three oranges, which represents a winning combination. Thus, by using the hold facility on both sets of reels, and by virtue of the interdependence of the second set of reels on the first set, a win is achieved.

On random or psuedo-random occasions a nudge facility becomes available. This nudge facility may be available only for the simulated reels 22, 24 and 26, only for the electro-mechanical reels 4, 6 and 8, or for both sets of reels.

Assuming first that the facility is available only for the simulated reels, then the user can operate any of the buttons 28 associated with those reels to cause the reels to rotate in a stepwise fashion. If the symbol changing feature is in operation, then each time a simulated reel is indexed, the symbol which is brought to the win line 34 is changed to the symbol of the corresponding electro-mechanical reel 4, 6 or 8 on the win line 32. This means that successive indexing operations will result in a number of adjacent symbols of one of the simulated reels becoming identical. For example, in Figure 1, a nudging operation may result in five successive symbols "7" appearing on simulated reel 22 due to the indexing of that reel five times while the symbol "7" of reel 4 was on the win line 32. More than one of the simulated reels may be nudged while a single nudging feature is available. The result may be that the simulated reels carry a large number of identical symbols, thus making it more likely that a winning combination will result from the next game to be played on the machine.

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in the preferred embodiment the symbols on the simulated reels 22, 24 and 26 are initialised so as to correspond to the symbols on the electro-mechanical reels, and the machine then calculates a nudging operation which can achieve a favourable result for the user and provides an indication to assist the user in performing this nudging operation. The operation can thus be as described in GB-A-2 117 155.

Assuming that the nudge facility is available for both sets of reels, there may be provision for an automatic nudge, whereby all the reels are indexed and the player is able using the buttons 28 to stop the electro-mechanical reels, any symbols then appearing on the win line 32 being successively duplicated on the win line 34 of the simulated reels as the simulated reels continue to rotate.

The machine may also be provided with another facility similar to the nudging facility mentioned above, whereby on random or psuedo-random occasions (possibly dependent upon the appearance of a particular symbol of the mechanical reels) then instead of only changing one symbol on a simulated reel, a plurality of symbols are changed in succession to the same symbol. Thus, if for example an orange symbol appears on the win line 32, the orange symbol also having printed thereon the number 6, then the corresponding simulated reel would have six adjacent symbols changed to the orange symbol.

It will be appreciated that in a machine according to the present invention the spinning of the reels may result in winning combinations appearing on both the win lines 32 and 34. This situation can be dealt with in any one of a number of different ways. In one embodiment, the accumulated value of both wins is awarded to the user. Alternatively, the user is awarded only the highest-value win. In another embodiment, there may be provided a facility whereby the user can perform a gambling operation which determines which of the win values is awarded.

As is per se known in the art, any of the facilities mentioned above may be operated in a manual, automatic or semi-automatic manner. For example, the nudging operation can take place automatically, the user being required to operate a particular button in order to terminate the nudging. The machine may be arranged to evaluate which reels should be held in order to optimise the user's chance of obtaining a winning combination, and then to cause those reels to be held, or indicate the preferred reels to the user.

The symbol changing operation may take place automatically, as indicated above. Alternatively, the user may be able to control, for example by pressing a button, whether or not the symbol changing operation is to take place. He may have means such as a plurality of buttons whereby he can make this choice individually for each of the simulated reels. As indicated above, the possibility of performing a symbol changing operation may arise every time there is no

winning combination on either of the win lines, but in an alternative embodiment the symbol changing operation becomes available at other times, which may determined at random or psuedo-random. It is possible that, for example, on random or psuedo-random occasions, the symbol changing operation may become available after a winning combination has appeared on the win line 32 associated with mechanical reels, so that the winning combination is duplicated on the simulated reels and the prize may thus be doubled. It is possible also that on random or psuedo-random occasions reel spinning operations may occur several times during a single game, so that there are several occasions on which symbol-changing operations may take place, thus varying the symbol combinations on the simulated reels to a greater extent.

In the above embodiment, only the symbols on the win lines of the simulated reels are changed to correspond to the symbols on the electro-mechanical reels. If desired, a greater or lesser number of symbols may be changed. For example, all the viewable symbols on the mechanical reels may be duplicated on the simulated reels. Alternatively, the machine may be arranged so that it will only permit symbol changing of a predetermined number of the symbols on the win line of the simulated reels, these symbols being selected either automatically or by the user.

As mentioned above, the simulated reels may be initialised as a result of a win, or when a nudge facility becomes available on the electro-mechanical reels. Other circumstances may also result in initialisation. For example, this may occur on random or pseudo-random occasions.

The provision of the display screen 20 enables a number of attractive additional features to be added. For example, if the machine is provided with a gamble facility as mentioned above, this could be achieved by changing the display on the screen 20 so that it represents a race track with individual characters representing for example horses, cars, athletes etc. These characters or symbols then race on the screen, the user winning or losing his gamble depending upon the result of the race. The user may be able to select one or more of the characters, and may be able to control his selected character or characters by pressing a button.

In an alternative embodiment, the display screen 20 displays not only the strips 22, 24 and 26 but also three further simulated reels which are similar in appearance to the electro-mechanical reels 4, 6 and 8 (i.e. appear to be of drum-configuration). These further simulated reels would carry the same symbols as the strips, would rotate in synchronism with the strips and would carry symbols which change in the same manner as those on the strips.

Although it is preferred that the symbol changing operation result in a symbol on the simulated reel being made to correspond with a symbol on an electro-

mechanical reel, these corresponding symbols do not have to resemble each other visually.

It will be appreciated that preferably the display screen 20 displays simultaneously at least the majority, and preferably all, of the symbols of the simulated reels, so that the player can readily perceive the effects of the symbol-changing operations.

Claims

1. A gaming or amusement machine having a first display area (11) for displaying in variable combinations a plurality of symbols each from a respective predetermined sequence (4, 6, 8) of symbols, a second display area (20) for displaying in variable combinations a plurality of symbols each from a respective predetermined sequence (22, 24, 26) of symbols, and means for awarding a winning prize if a displayed symbol combination is a predetermined winning combination, characterised by means for altering a symbol in a sequence (e.g. 22, 24 or 26) associated with the second display area (20) to a different symbol depending upon the display in the first display area (11), thereby to alter the likelihood that a particular combination will be displayed in the second display area (20).

2. A machine as claimed in claim 1, wherein each said predetermined sequence (4, 6, 8, 22, 24, 26) of symbols is formed by a respective reel, and at least the reels (22, 24, 26) associated with the second display area (20) are simulated reels on a video screen (20).

3. A machine as claimed in claim 1 or claim 2, wherein the altering means is operable to alter a symbol in the second display area (20) such that it corresponds to a displayed symbol in a corresponding sequence associated with the first display area (11).

4. A machine as claimed in any preceding claim, in which predetermined winning combinations associated with the first display area (11) correspond to predetermined winning combinations associated with the second display area (20).

5. A machine as claimed in any preceding claim, including means for initialising the predetermined sequences (22, 24, 26) of symbols associated with the second display area (20) such that they correspond with the predetermined sequences (4, 6, 8) associated with the first display area.

6. A machine as claimed in any preceding claim, including user-operable means for inhibiting the changing of the symbols.

7. A machine as claimed in any preceding claim, wherein the machine is operable to execute a hold feature whereby the user can individually select one or more symbols of the displayed combinations such that the selected symbols do not change when the combinations are varied.

8. A machine as claimed in claim 7, wherein the machine is capable, after the symbol combinations have been varied, to change a non-selected symbol associated with the second display area (20) so that it corresponds to a selected symbol associated with the first display area (11), whereby a winning combination may be formed by this changed symbol and selected symbols associated with the second display area (20).

9. A machine as claimed in any preceding claim, wherein the machine is operable to provide a nudge feature whereby one of the sequences (22, 24, 26) associated with the second display area (20) can have a plurality of adjacent symbols thereof made to correspond to each other.

10. A machine as claimed in any preceding claim, wherein the second display area (20) is arranged to display simultaneously at least the majority of the symbols in each of the predetermined sequences associated therewith.

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